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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,454	12/26/2001	Giulio Cavalli	3606-0119P	2938

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EXAMINER

VARTANIAN, HARRY

ART UNIT PAPER NUMBER

2634

DATE MAILED: 05/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/025,454

Applicant(s)

CAVALLI ET AL.

Examiner

Harry Vartanian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-7,9 and 10 is/are rejected.
- 7) ☒ Claim(s) 2,4,8, and,11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 1-11 are objected to because of the following informalities: the single quotation marks for 'master', 'slave', 'working point', etc... are unnecessary. These terms will automatically receive the definitions used in the specification, therefore it is not necessary to make them distinguished. Appropriate correction is required.
2. Claims 1-11 are objected to because of the following informalities: "phy" is not defined. Please change to "physical mode". Appropriate correction is required.
3. Claims 8 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim *should refer to other claims in the alternative only*. See MPEP § 608.01(n). Accordingly, the Claim has not been further treated on the merits.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 5-6, 7, 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Thomas et al (WO 99/20016). Regarding Claims 1 and 5, Thomas et al discloses a wireless MAN adaptive modulation technique that adjusts data level, modulation, and FEC between a router("master") and mobile device("slave") in order to maintain highly efficient power and bandwidth utilization(Abstract). More specifically, Thomas et al states that the "a strength

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of a signal received over a wireless communication link is periodically monitored for maintaining the strength within **a predefined range** by adjusting the transmission power.”(Abstract) In Column 2, Lines 9-16 Thomas et al also discloses that a system is needed “for transmitting data over a wireless communication link in a MAN **at a rate sufficient to keep up with demand**. What is still further needed is a technique for transmitting data over a wireless communication link in a MAN at a **relatively low power**.” He also states “The present invention presents a novel method of and apparatus for achieving both long range and high link availability with low transmitted power by using a combination of adaptive modulation.” (Pg 13, Lines 16-22)

Regarding Claims 6 and 9-10, Thomas et al states that:

“In a given time interval during rain fades, if the monitored BER and RSL of a particular link are approaching their predefined threshold levels, (e. g., 10^{-4} and RSL16), **appropriate countermeasures** are invoked in order to improve link performance and maintain the required link availability. The countermeasures can be one or more of the following: **momentarily reducing the link transmission rate, reducing the modulation level and/or introducing a low-rate error correction coding**. For example, if in response to rain fade, the link operates at a transmission rate that is reduced to 50Mb/s, and with a modulation level that is reduced to 4QAM, its RSL threshold for 10^{-4} , designated herein as RSL4, is 8dB lower than the threshold RSL16. In addition, since 4QAM can tolerate more nonlinear AM-to-AM and AM-to-PM distortions, the transmitted power can be increased up to 2dB below the 1dB-compression point of the power amplifier. **In other words, with the same power amplifier, the useable transmitted power for 4QAM is 4dB higher than that in the case of 16QAM.**” (Pg. 14, lines 5-19)

“By using a combination of **adaptive power control, data rate reduction, modulation level reduction, and low-rate error correction coding**, a longer range can be achieved at low transmitted power, as described herein. Consider, as an example, a programmable M-ary Quadrature Amplitude Modulation (QAM) scheme being used in the modulator/demodulator 408 in Fig. 3. For example, assume 16QAM is used to carry 100Mb/s full-duplex Fast Ethernet over a wireless link in the MAN. **In order to achieve a BER of better than 10^{-4} , the RSL must be kept higher than a predefined threshold level, designated herein as RSL 16.**” (Pg. 13, Lines 23-30)

Regarding Claim 7, Thomas et al states that:

The preset level RSL, 605 (Fig. 6) is selected to be higher than RSL, 603, introducing hysteresis to prevent changing the data format unnecessarily often(Pg. 17, line 30 to Pg. 18 line 2)

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas et al (WO 99/20016) in view of Yoshida (US Patent# 6,452,964). Thomas et al meets all the limitations of Claim 3 (see above paragraphs) except disclosing the fact that the adaptive modulation scheme keeps the BER constants for each "working point" or modulation scheme.

However, Yoshida's adaptive modulation scheme discloses the following:

"Particularly, in the case of an adaptive modulation method of performing an adaptive control according to the change of an instantaneous value, although a constant BER/variable rate can be achieved instantaneously (or in a short term), there is no guarantee against variation for a long term. **Therefore, a constant BER/constant rate is implemented by controlling the transmission power so that an average received power can be maintained constant over a long duration (a plurality of blocks).** Although this transmission power control does not increase interference as much as transmission power control following an instantaneous value (see FIG. 2), there remains a certain amount of interference. This is especially true for the average received power of mobile terminals on the edge of a cell because the transmission power of these terminals is fairly large." (Column 10, Line 17-30)

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Therefor it would have been prima facie obvious to maintain a constant BER by controlling the transmission power in an adaptive modulation system. A motivation to combine is that a constant BER rate ensures a standard quality of service for all mobile stations to follow.

Allowable Subject Matter

6. Claims 2, 4, 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening Claims -AND- the above objections are overcome.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claim 1 provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claim 1 of copending Application No. 10287393. Although the conflicting claims are not identical, they are not patentably distinct from each other because the scope overlap. Each of the limitations of Claim 1 in 10/025545 are met by the preamble and "means adapted to..." limitation of Claim 1 in 10/287393.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Vartanian whose telephone number is 571.272.3048. The examiner can normally be reached on 10:00-6:30 Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571.272.3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Harry Vartanian
Examiner
Art Unit 2634

HV



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